

REMARKS

Applicants thank the Examiner for the indication of allowable subject matter in claims 14 – 17.

The specification is amended to reflect the current status of the parent applications, as requested by the Examiner. No new matter is introduced.

Claims 1, 10, and 12 are amended. Support for the amendments to claims 1, 10, and 12 can be found, for example, in Example 2 on page 11 of the specification as filed. Additionally, claims 1 and 10 are amended to incorporate the subject matter of claim 6.

Claim 6 is cancelled.

Claims 4, 6, 8, and 9 are amended to clarify the claim language.

New claims 21 and 22 are added. Support for new claims 21 and 22 can be found, for example, at page 9 and in Example 2 on page 11 of the specification as filed.

The rejection of claims 1 – 12 and 18 – 20 under 35 USC 112, second paragraph is respectfully traversed for the following reasons: 1) The term “active clay basis” is defined in the first full paragraph of page 7 in the specification as filed. Those of skill in the art would understand that this term refers to the amount of clay, not including impurities, present in the claimed slurries. 2) Claim 6 is cancelled. The subject matter of claim 6 is incorporated into claim 1. The language of claim 6 noted by the Examiner has been changed. 3) Incorporating the subject matter of claim 6 into claim 1 resolves the antecedent

basis issue for claim 7. 4) The antecedent basis issues in claims 9 and 12 have been corrected.

The rejection of claims 1, 2, 4, and 10 under 35 USC 102(a) or (e), or in the alternative under 35 USC 103(a), over Allen et al, US Patent 6,024,790 is respectfully traversed. Allen et al. describes a composition containing an alkaline earth bentonite and an activator, such as a phosphonate. By contrast, Claims 1 and 10 as amended require a clay slurry comprising a) a sodium smectite clay, b) one or more phosphonate additives, and c) water. Sodium is an alkali metal, not an alkaline earth metal. Thus, alkaline earth bentonite does not include sodium bentonite or any other sodium smectite clay. Reconsideration and withdrawal of the rejection are respectfully requested.

The rejection of claims 3, 5, 7 – 9, 11 – 13, and 18 – 20 under 35 USC 103(a) over Allen et al. in view of JP 59-7085 or JP 49-107024 is also respectfully traversed. Allen et al. discloses compositions containing an alkaline earth bentonite and an activator, such as a phosphonate. In the background section, Allen et al. acknowledges the existence of ion exchanged clays (C 1, lines 14 – 28). However, Allen et al. specifically uses calcium bentonite or other alkaline earth bentonites in the disclosed compositions. As indicated in the attached declaration of Wouter Ijdo, Ph.D., those of skill in the art would understand that the sodium clays of the claimed invention are distinct from the alkaline earth clays described in Allen et al. Thus, Allen et al. does not teach that ion exchanged clays and alkaline earth bentonites may be substituted for each other.

As a result, taken as a whole, it is not obvious to modify the slurries disclosed in Allen et al. to use a sodium exchanged, natural smectite clay in place of the an alkaline earth bentonite. The abstracts of the additional references JP 59-7085 and JP 49-107024, either alone or in combination with Allen et al., do not provide any additional disclosure to alter this conclusion. The abstract of JP 59-7085 discloses the use of activated clays in paint. The abstract of JP 59-7085 does not contain any disclosure that would suggest to one of skill in the art that the alkaline earth bentonites of Allen et al. could be replaced with a sodium clay. Similarly, the abstract of JP 49-107024 discloses use of activated clay in a cement composition. The abstract of JP 49-107024 does not contain any disclosure that would suggest to one of skill in the art that the alkaline earth bentonites of Allen et al. could be replaced with a sodium clay. Reconsideration and withdrawal of this rejection are respectfully requested.

The rejection of claims 1, 2, 4, 10, and 18 – 20 under 35 USC 102(b), or in the alternative, under 35 USC 103(a) over Coutelle et al., US Patent 5,582,638, is respectfully traversed. Coutelle describes compositions containing synthetic phyllosilicates. By contrast, claims 1 and 10 as amended require a slurry containing a sodium exchanged, natural clay. Because Coutelle et al. does not disclose the use of natural clays, Coutelle et al. does not describe each and every element of the claimed invention.

Additionally, as discussed in specification of this application, synthetic clays have a different composition than natural clays and exhibit substantially

different properties relative to natural clays. For example, synthetic clays are uniform in charge density and virtually impurity free, leading to different properties when used, for example, as a rheological additive. As a result, one of skill in the art would not expect natural clays, as required by the claimed invention, to exhibit the same behavior as the synthetic phyllosilicates disclosed in Coutelle et al. The fact that those of skill in the art would understand that there are significant differences in properties between natural and synthetic clays is confirmed in the attached declaration of Wouter Ijdo, Ph.D. Also, Coutelle et al. provides no disclosure or suggestion that natural clays can be substituted for the synthetic phyllosilicates disclosed in the invention. Thus, it would not be obvious to one of skill in the art to substitute the sodium exchanged, natural clays of the claimed invention with the synthetic phyllosilicates disclosed in Coutelle et al. Reconsideration and withdrawal of this rejection are respectfully requested.

The rejection of claims 3, 5, 7 – 9, 11 - 13, and 18 – 20 under 35 USC 103(a) over Coutelle et al. either alone or in view of Allen et al. in view of JP 59-7085 and JP 49-107024 is also respectfully traversed. The abstracts of JP 59-7085 and JP 49-107024 do not contain any disclosure that would suggest to one of skill in the art that the synthetic phyllosilicates disclosed in Coutelle et al. could be replaced with natural clays. Additionally, the combination of Coutelle et al. and Allen et al. cannot be operably combined to arrive at the slurries of the claimed invention. Allen et al. only discloses slurries containing alkaline earth

bentonites. As noted above, Allen et al. acknowledges the existence of ion exchanged clays, but then only discloses compositions containing alkaline earth clays. While it is not clear if it is feasible to operably combine the teachings of Coutelle et al. and Allen et al., any such combination would have to involve the use of alkaline earth clays, such as a synthetic alkalkine earth phyllosilicate. By contrast, the claimed invention requires the use of a sodium exchanged, natural smectite clay. Thus, the combination of Coutelle et al. and Allen et al. also fails to describe or suggest the compositions of the claimed invention. Reconsideration and withdrawal of this rejection are respectfully requested.

The rejection of claims 1 – 2 and 10 under 35 USC 102(a) or (e), or in the alternative 35 USC 103(a), over Brown et al., US patent 4,964,918 is also respectfully traversed. As acknowledged in the Office Action, the phosphonate additives of claims 1 and 10 as amended are not disclosed in Brown et al. Additionally, the slurries described in Brown et al. are not viscosity-stable slurries, as required by the claimed invention. Col. 3, line 65 to Col. 4, line 2 of Brown et al. describes the behavior of the Brown et al. slurries over time. Brown et al. notes that, without agitation, the disclosed slurry will remain pumpable for only an hour. The slurries of Brown et al. only remain pumpable over time if the slurries are continuously agitated. This is in contrast to the claimed invention, which requires a viscosity-stable clay slurry that remains pumpable without agitation. Example 5 on pages 13 – 14 of the specification provides an example of the viscosity-stability achieved by the claimed invention. As shown in Table 5,

a slurry including a phosphonate additive according to the claimed invention shows little change in viscosity when stored for 4 weeks at either room temperature or 50°C. This dramatic difference in viscosity stability between the claimed slurries and the slurries described in Brown et al. highlights the distinction between Brown et al. and the claimed invention. Reconsideration and withdrawal of this rejection are respectfully requested.

The rejection of claims 3, 5, 7 – 9, 11 – 13, and 18 – 20 under 35 USC 103(a) over Brown et al. in view of Allen et al. and further in view of JP 59-7085 and JP 49-107024 is also respectfully traversed. As noted above, Allen et al. requires use of alkaline earth bentonites. Taking the references as a whole, any operable combination of Allen et al. and Brown et al. would result in an alkaline earth clay slurry, not a sodium (alkali) clay slurry as required by the claimed invention. For at least this reason and the further reasons stated above, reconsideration and withdrawal of this rejection are respectfully requested.

The rejection of claims 1 – 5, 7 – 13, and 18 – 20 under 35 USC 102(b) or 35 USC 103(a) over Mardis et al., optionally in view of Allen et al., JP 59-7085, and JP 49-107024 is also respectfully traversed. As noted in the Office Action, Mardis et al. does not teach the claimed phosphonate compounds. In particular, Mardis et al. does not teach the phosphonate or phosphinite compounds of the claimed invention that have two or more acid moieties. Additionally, Mardis et al. gives no indication of forming viscosity-stable clay slurries, as required by the claimed invention. Additionally, all of the compositions disclosed in Mardis et al.

include a quaternary cationic compound. With regard to Allen et al., as noted above, any operable combination with Allen et al. would have to involve alkaline earth clays, as opposed to the sodium clay slurries of the claimed invention. For at least these reasons, reconsideration and withdrawal of the rejection are requested.

In view of the foregoing amendments and remarks, the application is respectfully submitted to be in condition for allowance, and prompt, favorable action thereon is earnestly solicited.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #080395/52547C1).

July 14, 2004

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